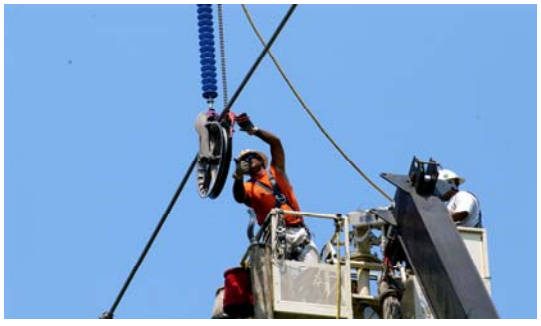
2008 Forecast of Loads and Resources

for the Period 2008-2017



The Connecticut Light & Power Company

March 3, 2008

Connecticut Light & Power

The Northeast Utilities System

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Introduction

The Connecticut Light and Power Company ("CL&P") and its customers were deeply affected by the sweeping energy legislation passed in 2007, Public Act 07-242, An Act Concerning Electricity and Energy Efficiency ("the Act"). The effect of the Act is akin to electric industry restructuring legislation passed almost ten years ago and, while 'restructuring' might be too strong a characterization, the Act could certainly be seen as electric industry 'restoration', at least in Connecticut. The Act restores an Integrated Resource Planning ("IRP") process, cost of service generation, the opportunity for electric utility-owned generation, and full funding of conservation programs. This filing, to the extent possible at this point in the implementation of the Act, will attempt to address its impact on CL&P and its customers.

Electric Energy and Peak-Demand Forecast

Over the past five years CL&P customers' total energy consumption has decreased by an average of 0.1% per year, while peak demand increased by 1.7% per year. For the ten-year forecast period, under the most likely conditions, the annual growth in energy consumption is projected to be 0.4% with a growth in peak demand of 1.0%. Under an extreme condition of very hot weather, peak load over this time could increase 2.5% per year.[1]

Conservation and Load Management

The projected energy savings from Conservation and Load Management ("C&LM") measures, assuming stable funding, is projected to increase from 65 gigawatt-hours ("GWhs") in 2008 to over 1,700 GWhs in 2017.[2] Projected peak demand reductions in 2008 begin at approximately 225 megawatts ("MWs") and end at over 500 MWs.[3]

Generation Supply

CL&P does not presently own generation but does purchase about 400 MWs of generation supply under several power-purchase agreements and Rate 980. CL&P sells this energy into the wholesale market or uses it to offset losses incurred in serving CL&P customers.

The Act requires electric utilities to submit a proposal to the Department of Public Utility Control ("DPUC") to build peaking generation facilities. CL&P's Qualification Submittal for 265 MWs of peaking generation was recently accepted and on March 3, 2008, CL&P will file the second and final portion of its proposal for DPUC consideration. A Decision is slated for June 2008. The Act also increased the amount of renewable generation electric utilities must procure to 150 MWs. The DPUC has identified approximately 140 MWs worth of projects that have been or will be placed

[1] All growth rates are compounded annually and weather-normalized.

[2] Includes full restoration of funding and ISO-NE market revenues. The funding levels proposed in the IRP were not approved as of February 2008 and were not included in this report.

[3] C&LM Energy savings and peak reductions do not include the effects of prior years' program activity.

under contract. In addition, the Act directed the electric utilities to submit a joint IRP to the Connecticut Energy Advisory Board ("CEAB") who must file their comments with the DPUC by April 1, 2008. The DPUC in turn must approve the IRP by July 1, 2008. The IRP projects that given a number of assumptions about resources that may come online over the planning horizon, Connecticut will not need to add new capacity to meet loss of load expectation capacity reliability needs under a wide range of possible futures for the next ten years.

The Independent System Operator-New England ("ISO-NE") conducted its first Forward Capacity Auction (FCA) which identified over 39 gigawatts (GWs) of new and existing demand- and supply-side resources to meet the 32 GWs of need for reliability for the period June 2010 through May 2011. Bidding in the final round reached the minimum price established for this auction with over 2,000 MWs in excess of internal New England supply remaining. ISO-NE indicated that up to 330 MWs of resources will be eligible for reliability must run payments, down from the current amount of 3,200 MWs.

Transmission

CL&P is required to report on planned transmission lines on which proposed route reviews are being undertaken or for which certificate applications have already been filed. Table 6-1 lists twenty-five transmission circuit segments approved by the Connecticut Siting Council ("CSC"). Most of these projects are located in southwest Connecticut ("SWCT") and are projected to be completed by 2009. Table 6-2 lists fifteen transmission circuit segments currently in various phases of development, all of which are outside of SWCT. Table 6-3 lists forty-one substation projects, about half of which have CSC approval.

Transmission Planning and Reliability

In today's competitive market for electric generation supply, both the electric utilities (via Standard Service and Last Resort Service) and electric suppliers provide electric service to ratepayers that utilize the utilities' transmission lines. As the marketplace evolves (e.g. the possible return of electric utilities to regulated generation, conservation measures, distributed generation installations) challenges are placed upon the transmission operators to meet the goals of the Federal Energy Regulatory Commission ("FERC") to provide reliable service through meeting the March 2007 North American Electric Reliability Corporation ("NERC") reliability standards. CL&P is engaged in planning projects to meet these requirements.

Additionally, the utilities' transmission systems must plan to meet future needs associated with Renewable Portfolio Standards ("RPS") and the Regional Greenhouse Gas Initiative ("RGGI") in New England.

Transmission System Needs

CL&P's transmission lines are the electricity "highway" of Connecticut, moving electricity from where it is produced to where it is used. Throughout Connecticut, CL&P is planning and constructing projects that will improve system reliability and also alleviate burdensome congestion charges passed on to its customers.

Throughout Connecticut, CL&P is planning new upgrades to its transmission system. Southwest Connecticut comprises half of Connecticut's electric load and its transmission capability is currently being improved by projects approved by the CSC and currently under construction. Connecticut's overall demand for electricity outpaces its ability to generate, requiring the import of electricity during peak demand. The New England East – West Solutions ("NEEWS") projects, which will begin the siting process in 2008, will improve Connecticut's import capacity to about 45% of its peak demand upon its completion.

To meet future RPS and RGGI standards, CL&P has studied the prospect of transporting renewable energy from northern New England and Canada to Connecticut and has developed three possible solutions. Finally, CL&P's future needs must keep in mind the cost of installing underground lines, as a recent ISO-NE decision allocated the cost differential for underground lines (in comparison to overhead lines) to Connecticut's ratepayers.

Chapter 1: INTRODUCTION

1.1 Report Overview

Pursuant to Connecticut General Statute 16-50r, CL&P submits its 2008 forecast of loads and resources report. In this report, CL&P presents and discusses:

- The forecast of electric energy and peak demand.
- Resource requirements.
- Conservation and load management.
- The changing landscape of the transmission system planning process.
- An overview of current and future issues regarding Connecticut's transmission system.
- Tables listing proposed additions and upgrades to its transmission system through the forecast period.

Chapter 2: FORECAST OF LOADS AND RESOURCES

Chapter Highlights

- The 2007 CL&P summer peak load was lower than the 2006 peak due to milder weather.
- While CL&P uses its own Reference Plan Forecast for financial forecasting, the Company uses ISO-NE's load forecast for transmission planning purposes.
- Connecticut's reserve capacity is increasing as a result of CT legislative initiatives, as implemented by the Department of Public Utility Control, absent merchant generation retirements.

2.1 Electric Energy and Peak-Demand Forecast

The forecast contained in this chapter is based on the Company's budget forecast which was prepared in October 2007. Although this forecast is used for CL&P's financial planning, it is important to note that it is not used for transmission planning. ISO-NE has responsibility for regional transmission planning and independently develops its own forecast which is used by CL&P for its transmission planning.

The Reference Plan is based on the total franchise area that CL&P serves. As a delivery company, changes in market share due to industry restructuring are irrelevant and are therefore not factored into this forecast. The forecast excludes wholesale sales for resale and bulk power sales. Furthermore, this forecast includes the C&LM program savings projections that were developed last year for the Company's budget forecast, and does not include the updated C&LM savings projections that are shown in Chapter 3 of this report. However, the differences between the two C&LM projections are not significant.

2.1.1 Reference Plan Forecast

CL&P's Reference Plan Forecast is based on the results of econometric models, adjusted for CL&P's forecasted C&LM programs. It also includes projected reductions resulting from distributed generation ("DG") projects in accordance with Public Act 05-01, June Special Session, *An Act Concerning Energy Independence* (PA 05-01). It does not include reductions due to ISO-NE's load response program.

The Reference Plan assumes:

- Normal weather based on a thirty-year average (i.e., 1977-2006) of heating and cooling degree days and a reference case economic forecast.
- Continued funding at current levels for new C&LM programs throughout the forecast period.
- Modest assumptions about losses resulting from new DG projects.

The Reference Plan Forecast projects a weather-normalized compound annual growth rate ("CAGR") in total electrical energy output requirements of 0.4 percent

for CL&P from 2007-2017. Without the Company's C&LM programs, the forecasted growth rate would be 1.0 percent.

The normalized CAGR in summer peak demand in the Reference Plan Forecast is forecasted to be 1.0 percent. Similarly, if the C&LM programs were excluded, the forecasted CAGR would be 1.6 percent.

Table 2-1 provides historic output and summer peaks, normalized for weather, for the 2003-2007 period, and forecast output and peaks for the 2008-2017 period. The peak load forecast is the maximum sum of the hourly forecasts of load for each customer class, company use and associated losses. The sum of the class hourly loads for each year, company use and associated losses is the annual forecast of system electrical energy requirements or output. This is the amount of energy which must be supplied by generating plants to serve the loads on the distribution system.

The Reference Plan Forecast, as a 50/50 forecast, assumes normal weather throughout the year, with normal peak producing weather episodes in each season. The forecasted mean daily temperature for the summer peak day is 83º Fahrenheit ("ºF") and is based on the average peak day temperatures from 1977-2006.

The historical peak day mean temperatures range from 76º F to 88º F with deviations from the average peak day temperatures being random, recurring and unpredictable occurrences. For example, the lowest peak day mean temperature occurred in 2000, while the highest occurred in 2001. This variability of peak producing weather means that over the forecast period there will be years when the actual peaks will be significantly above or below forecasted peaks.

2.1.2 Forecast Scenarios

Table 2-1 also contains scenarios demonstrating the variability of peak load data around the 50/50 peak forecast due to weather. The high load scenario roughly corresponds conceptually to ISO-NE's 90/10 forecast, described below. The table shows that weather has a significant impact on the peak load forecast with variability of approximately 10 percent, or 600 MWs, above and below the 50/50 forecast, which is based on normal weather.

To illustrate, the 2017 summer peak forecast reflecting average peak producing weather is 6,026 MWs. However, either extremely mild or extremely hot weather could result in a range of potential peak loads from 5,402 MWs to 6,659 MWs. This 1,257 MWs of variation, which is a band of about plus or minus 10 percent around the average, demonstrates the potential impact of weather alone on forecasted summer-peak demand.

Extremely hot weather is unpredictable, yet the impact is immediate. A hot day in the first year of the forecast that matches the extreme peak day weather in 2001 could produce peak demand almost as high as the forecast for the eighth year under normal weather assumptions. Even a moderately hot day such as experienced on the 2005 peak day could increase peak demand by approximately 200 MWs.

Table 2-1: CL&P 2008 Reference Plan Forecast Summer Peak

	Net Electrical Energy Output Requirements		Reference Plan (50/50 Case)			Extreme Hot Scenario			Extreme Cool Scenario		
Year	Output	Annual Change	Peak	Annual Change	Load Factor	Peak	Annual Change	Load Factor	Peak	Annual Change	Load Factor
	GWH	(%)	MW	(%)	(2)	MW	(%)	(2)	MW	(%)	(2)
HISTORY											
2003	25190		4980		0.577						
2004	25496	1.2%	4818	-3.3%	0.602						
2005	26119	2.4%	5402	12.1%	0.552						
2006	24871	-4.8%	5512	2.0%	0.515						
2007	25185	1.3%	5209	-5.5%	0.552						
Compound Rates of Growth (2003-2007)											
	0.0%		1.1%								
HISTORY NORMALIZED FOR WEATHER											
2003	25077		5093		0.562						
2004	25578	2.0%	5056	-0.7%	0.576						
2005	25498	-0.3%	5277	4.4%	0.552						
2006	24926	-2.2%	5084	-3.6%	0.560						
2007	24936	0.0%	5442	7.0%	0.523						
Compound Rates of Growth (2003-2007)											
	-0.1%		1.7%								
FORECAST											
2008	25171	0.9%	5345	-1.8%	0.536	5832	7.2%	0.491	4862	-10.7%	0.589
2009	25215	0.2%	5384	0.7%	0.535	5888	1.0%	0.489	4886	0.5%	0.589
2010	25375	0.6%	5479	1.8%	0.529	5999	1.9%	0.483	4966	1.6%	0.583
2011	25434	0.2%	5557	1.4%	0.522	6093	1.6%	0.477	5028	1.2%	0.578
2012	25571	0.5%	5626	1.3%	0.517	6179	1.4%	0.471	5081	1.1%	0.573
2013	25544	-0.1%	5714	1.6%	0.510	6283	1.7%	0.464	5153	1.4%	0.566
2014	25581	0.1%	5782	1.2%	0.505	6367	1.3%	0.459	5206	1.0%	0.561
2015	25617	0.1%	5905	2.1%	0.495	6506	2.2%	0.450	5313	2.0%	0.550
2016	25792	0.7%	5955	0.9%	0.493	6572	1.0%	0.447	5347	0.7%	0.549
2017	25860	0.3%	6026	1.2%	0.490	6659	1.3%	0.443	5402	1.0%	0.546
Compound Rates of Growth (2007-2017)											
	0.3%		1.5%			2.5%			0.4%		
Normalized Compound Rates of Growth (2007-2017)											
	0.4%		1.0%			2.0%			-0.1%		

1. Sales plus losses and company use.
2. Load Factor = Output (MWH) / (8760 Hours X Season Peak (MW)).

Forecasted Reference Plan Peaks are based on normal peak day weather (83º mean daily temperature). Forecasted High Peaks are based on the weather that occurred on the 2001 peak day (88º mean daily temperature). Forecasted Low Peaks are based on the weather that occurred on the 2000 peak day (76º mean daily temperature).

2.1.3 ISO-NE Demand Forecasts

ISO-NE independently develops annual forecasts of peak loads for each New England state. The forecast used for transmission planning studies is a 90/10 forecast which means that the actual peak load has a 10 percent chance of exceeding the forecasted load level and a 90 percent chance of falling below the forecasted load level.

ISO-NE uses this 90/10 demand forecast philosophy to develop its transmission plans because this planning approach results in greater certainty of providing reliable service under severe weather conditions.

The primary difference between the ISO-NE and CL&P forecasts is the treatment of C&LM and DG. The CL&P energy and peak forecasts include C&LM and DG as reductions in demand, while the ISO-NE energy and peak forecast do not include these reductions; instead, C&LM and DG are considered to be resources and are included in the capacity forecast.

2.2 Resources: Existing and Planned Generation Supply

CL&P does not presently own generation and is not serving load with purchased resources as a result of electric industry restructuring in Connecticut.

Ongoing Generation Purchase Obligations

The Company continues to purchase generation under a number of power-purchase agreements, including an entitlement in the Vermont Yankee nuclear power plant. CL&P also purchases generation under Rate 980 from a number of facilities whenever they choose to sell. In both cases, CL&P sells the energy into the wholesale market or uses the energy to offset losses incurred in serving CL&P distribution company customer loads.

New Class 1 Renewable Energy Project Purchases

Per Connecticut General Statute Section 16-244c as amended, the electric distribution companies are required to submit to the DPUC for its approval long-term purchase power agreements from Class I renewable energy source projects that receive funding from the Renewable Energy Investment Fund (administered by the Connecticut Clean Energy Fund or "CCEF"). On or after October 1, 2007 and until September 30, 2008 such agreements shall be comprised of not less than a total, allocated between CL&P and The United Illuminating Company (UI), of one hundred twenty five (125) megawatts; and on and after October 1, 2008 such agreements shall be comprised of not less than a total, allocated between CL&P and UI, of one hundred fifty (150) megawatts (Project 150).

CL&P and UI have executed a Cost Sharing Agreement in order to determine the sharing of costs incurred and benefits received (approximately 80% CL&P and 20% UI) in connection with each Electricity Purchase Agreement (EPA) entered into under the Program.

On April 19, 2007, CL&P executed an agreement to procure 15 MWs (annualized) of power from Watertown Renewable Power, LLC's 30 MW biomass facility under Round 1 of the Program.

The DPUC issued its final Decision regarding Round 2 of the Program on January 30, 2008. Seven of eleven projects recommended by CCEF were selected. The selected projects consist of three biomass, one landfill gas, and three fuel cell projects totaling 109.2 megawatts for a Program total to date of 124.2 megawatts. An eighth project was selected on a contingent basis should selected projects totaling 20 megawatts be unable to provide proof of financial ability within 90 days. CL&P and UI anticipate executing EPAs with the Round 2 selected projects by the second quarter 2008.

Table 2-2 lists the projects that have been selected for long-term contracts under Project 150, including their planned capacity and the estimated date they plan to begin operation.

Table 2-2: Renewable Generation Projects Selected In Project 150

Round	Project (Location)	Project Amount (MW)	Contract Amount (MW)	Est. In-Service Date	Term
1	Watertown Renewable Power, LLC (Watertown, CT)	30.0	15.0	11/1/2010	15
2	DFC-ERG Milford Project (Milford, CT)	9.0	9.0	12/1/2008	18
2	South Norwalk Electric Works (South Norwalk, CT)	32.5	30.0	6/1/2009	15
2	Plainfield Renewable Energy (Plainfield, CT)	37.5	30.0	7/1/2009	15
2	Clearview Renewable Energy, LLC (Bozrah, CT)	30.0	30.0	10/19/2009	20
2	Stamford Hospital Fuel Cell CHP (Stamford, CT)	4.8	4.8	4/1/2009	15
2	Clearview East Canaan Energy, LLC (North Canaan, CT)	3.0	3.0	11/1/2008	20
2	Waterbury Hospital Fuel Cell CHP (Waterbury, CT)	2.4	2.4	12/9/2008	15
Contingent Project:					
2	Triangle Fuel Cell Project (Danbury, CT)	21.0	21.0	7/1/2008	20

New Owned Peaking Generation

The following discussion addresses requirements 4 and 5 of C.G.S. Section 16-50r. On February 1, 2008 per Section 50 of the Act, CL&P submitted to the DPUC a peaking generation proposal for the construction of peaking units in Lebanon and Waterbury totaling 265 MWs. CL&P's proposal consists of 65 MWs of peaking generation located on property in Waterbury, CT at the Eagle Street facility and approximately 200 MWs on property in Lebanon, CT at CL&P's Card Street substation. Detailed information on these projects will be made public in early March 2008, with filings at the CSC at the appropriate time. The current schedule

calls for the DPUC to issue a final decision on the proposed peaking projects in June 2008.

2.2.1 Capacity Forecast

The capacity tables in this chapter provide estimates of CL&P's supply resources at present and during the 2008-2017 forecast period. All resources have winter and summer ratings in MWs to reflect the effects of varying seasonal conditions, such as the effect that ambient air and water temperatures have on thermal unit ratings. Starting with the ISO-NE forward capacity market capacity commitment period June 2010 through May 2011, capacity obligations will be measured and met using only summer rated capacity. Resources with winter ratings greater than their summer ratings may partner with resources having summer ratings greater than their winter ratings to meet capacity obligations; however, this is not expected to be a large part of the market. Winter ratings will continue to be reported in the interest of complete reporting.

2.2.2 Existing Supply Resources

Table 2-3 lists existing supply resources in which CL&P has ownership or entitlement interests for winter 2007/2008 and summer 2008. The entitlement percentage for Vermont Yankee has been adjusted to reflect the recently completed up-rating work.

This table lists CL&P's supply resources based on ownership or entitlement, arranged by: Base Load, Intermediate, Peaking, Pumped Storage, Hydroelectric, and Purchases categories.

Table 2-3: Generation Facilities in Which CL&P Has Ownership or Entitlement by Category

	WINTER RATING (MW)	SUMMER RATING (MW)	YEAR INSTALLED	LOCATION	% ENTITLEMENT CL&P
	2007/08	2008			
Base					
Vermont Yankee	48.98	47.72	1972	Vernon, VT	7.897
Nuclear Subtotal	48.98	47.72			
Intermediate	0.00	0.00			
Peaking	0.00	0.00			
Pumped Storage	0.00	0.00			
Hydro	0.00	0.00			
Purchases					
System	45.00	45.00			
Non-Utility	345.91	335.56			
Purchase Total	390.91	380.56			
Total Generation	439.89	428.28			

Base-load units are typically operated around the clock, intermediate units are those used to supply additional load required over a substantial part of the day, and peaking units supply power usually during the hours of highest demand. On occasion, some of the more efficient intermediate units operate as base-load units, while others may be called upon to operate as peaking capacity. Accordingly, these categories are intended to be generally descriptive rather than definitive, and reflect past operating patterns.

2.2.3 Planned Generation Resource Additions, Deactivations or Retirements

Please see the discussion under section 2.2 above.

2.2.4 Ten Year Capacity Forecast

Tables 2-4 and 2-5 summarize the ten-year capacity forecast for CL&P during the summer and winter peak periods of 2008 through 2017. The tables show CL&P's reserve margin expressed in MWs. Reserve margins decline over time, reflecting the ends of purchase power agreements. CL&P does not know with any certainty that these resources will continue to operate as merchant generators once their contracts with CL&P end, but for the purposes of the IRP, CL&P did assume they continue to operate.

Table 2-4: 2008 - 2017 Summer Forecast of Capacity (MW) at the Time of Summer Peak

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SUPPLY BEFORE SALES OR EXCHANGES	428.28	383.28	338.93	338.93	286.22	238.50	238.50	44.30	41.30	23.09
CAPACITY SALES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET GENERATION AVAILABLE	428.28	383.28	338.93	338.93	286.22	238.50	238.50	44.30	41.30	23.09
RESERVE	428.28	383.28	338.93	338.93	286.22	238.50	238.50	44.30	41.30	23.09

Table 2-5: 2007/08 - 2016/17 Summer Forecast of Capacity (MW) at the Time of Winter Peak

	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
SUPPLY BEFORE SALES OR EXCHANGES	439.89	394.89	387.99	348.99	348.99	242.68	242.68	229.95	47.80	44.80
CAPACITY SALES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET GENERATION AVAILABLE	439.89	394.89	387.99	348.99	348.99	242.68	242.68	229.95	47.80	44.80
RESERVE	439.89	394.89	387.99	348.99	348.99	242.68	242.68	229.95	47.80	44.80

Supply before sales is made up of supply resources in which CL&P has ownership or entitlement interest as summarized in Tables 2-4 and 2-5, including purchases.

Capacity sales are unit or system power sales that result in a transfer of capacity from CL&P to the purchaser.

Net generation available is the sum of the foregoing categories.
Reserve is the difference between Net Generation Available and the Estimated Peak Load. Since CL&P no longer serves load with its own resources, reserve equals net generation available.

2.2.5 Resource Purchases

Table 2-6 provides a listing of CL&P's contracted entitlements in existing cogeneration and small power production facilities of 1 MW and greater located in Connecticut, from which CL&P purchased power in 2007. The winter and summer claimed capacity of the generation at each production facility is provided

TABLE 2-6: EXISTING CUSTOMER OWNED FACILITIES 1 MW AND ABOVE PROVIDING GENERATION TO THE CONNECTICUT LIGHT AND POWER SYSTEM

EXISTING & PROVIDED GENERATION TO CL&P DURING 2007

Project Name	Location	Facility Type**(1)**	Fuel Source	By-Product of Fuel Consumption	Estimated Capacity kW	Claimed Capability Winter	Claimed Capability Summer	Generation Provided to NU kWh (1994)
FACILITIES UNDER LONG TERM CONTRACT (2)								
AES	Montville, CT	COGEN	Coal	Steam	181,000	182,150	181,000	
Algonquin(Dexter)	Windsor Locks, CT	COGEN	Gas	Steam	39,000	39,000	38,000	
Derby Dam	Shelton, CT	SPP	Hydro	-	6,900	7,050	7,050	
Goodwin Dam	Hartland, CT	SPP	Hydro	-	3,294	3,000	3,000	
Colebrook	Colebrook, CT	SPP	Hydro	-	3,000	1,550	1,550	
Quinebaug	Danielson, CT	SPP	Hydro	-	2,161	1,298	307	
Kinneytown B	Seymour, CT	SPP	Hydro	-	1,500	1,510	654	
Mid-CT CRRA(So. Meadow 5/6)	Hartford, CT	SPP	Refuse	-	67,000	57,326	52,709	
Preston (SCRRRA)	Preston, CT	SPP	Refuse	-	13,850	16,514	16,011	
Bristol RRF	Bristol, CT	SPP	Refuse	-	13,200	12,736	13,200	
Lisbon	Lisbon, CT	SPP	Refuse	-	13,500	13,036	12,961	
Wallingford RRF	Wallingford, CT	SPP	Refuse	-	7,100	6,900	6,350	
Hartford Landfill	Hartford, CT	SPP	Methane	-	2,445	1,900	1,900	
					353,950	**343,970**	**334,692**	
FACILITIES NOT UNDER LONG TERM CONTRACT (3)								
Pratt & Whitney	E. Hartford, CT	COGEN	Gas	Steam	23,800	N/A	N/A	
Rainbow (Farmington River Power)	Windsor, CT	SPP	Hydro	-	8,200	N/A	N/A	
Ten Co./The Energy Network	Hartford,CT	COGEN	Gas	Steam	4,500	N/A	N/A	
Wyre Wynd	Jewett City, CT	SPP	Hydro	-	2,780	N/A	N/A	
WM Renewable	New Milford,CT	SPP	Methane	-	1,613	N/A	N/A	
					40,893	**-**	**-**	
				TOTAL EXISTING	**394,843**	**343,970**	**334,692**	

(1) "SPP" Denotes a Small Power Producer, "COGEN" Denotes a Cogenerator.

(2) Estimated Capacity Represents Contracted Capacity.

(3) Estimated Capacity Represents Estimated Installed Capacity.

2.3 Generation Capacity Concerns

Although CL&P no longer owns or operates generation, it continues to have a responsibility to ensure the reliability of the electric system to deliver power to customers.

Integrated Resource Plan for Connecticut

CL&P and UI along with their consultant, The Brattle Group, submitted an IRP for Connecticut to the CEAB, dated January 1, 2008. It was the companies' first effort to meet the Act's statutory requirements for such a plan. The CEAB is presently reviewing the IRP and will be sending it to the DPUC later this year. With respect to capacity need, the IRP concludes that Connecticut will not need to add new capacity to meet loss of load expectation capacity reliability needs under a wide range of possible futures for the next ten years. This conclusion is based on a certain set of assumptions, including 1) the IRP does not forecast any retirements of existing generation units, 2) the IRP forecasts continued funding of C&LM initiatives at current levels, 3) new resources contracted by the DPUC in certain recent dockets come on-line as planned, 4) 280 MW of peaking units are added to meet second contingency operating concerns, and 5) the total New England East West Solution is completed. Based on assumptions used in the report, the IRP indicates that a number of inefficient plant retirements could occur with the state still able to satisfy its future loss of load expectation capacity reliability needs.

ISO-NE Forward Capacity Market

The ISO-NE Forward Capacity Market ("FCM") rules needed to conduct the first FCA were approved by the FERC over the course of 2007. In the first auction, 39,155 MW of new and existing demand- and supply-side resources competed to provide the 32,305 MW needed for reliability for the twelve month period June 2010 through May 2011. The auction consisted of eight rounds over a three-day period (February 4 – February 6, 2008) starting at a price of $15.00/kW-mo. Bidding in the final round reached the minimum price established for this auction at $4.50/kW-mo, with 2,047 MW of excess internal New England supply remaining.

Chapter 3: CONSERVATION AND LOAD MANAGEMENT

Chapter Highlights

- CL&P is collaborating with others in the development of nationally-recognized C&LM programs.
- Savings from the Connecticut Energy Efficiency Fund C&LM programs is a capacity resource and is included in the ISO-NE Forward Capacity Market.
- C&LM programs have leveraged additional sources of funding to increase the amount of conservation available to customers.

The C&LM Plan for 2008 (2008 Plan) was filed with the DPUC on October 1, 2007. A product of close collaboration between CL&P and UI, (together "the Companies") and the Energy Conservation Management Board (ECMB), the 2008 Plan was submitted to the DPUC in Docket 07-10-03, *DPUC Review of The Connecticut Light and Power Company's and The United Illuminating Company's Conservation and Load Management Plan for the Year 2008.*

The 2008 Plan received input from members of the public, industry groups and private enterprise, and was given final approval by the ECMB in September 2007. CL&P's budget in the 2008 Plan is $67.9 million.

Through an ISO-NE stakeholder process, a new FCM was created that allows the inclusion of demand resources in the capacity markets. These demand resources include energy efficiency, load management and demand response. The establishment of this market has created another potential funding source for C&LM programs that continues to increase in significance.

The Act calls for full restoration of the Connecticut Energy Efficiency Fund (the "Fund") beginning in the middle of 2008[4]. In addition to the Fund, the budget includes approximately $2.5 million dollars from participation in ISO-NE's Transition Period FCM for Other Demand Resources ("ODR") and Class III revenues[5].

In 2005, the DPUC opened Docket 05-07-14PH01, *DPUC Investigation to Reduce Federally Mandated Congestion Charges*. The Companies and the ECMB

[4] In 2003, the General Assembly diverted approximately 1/3 of the Fund to the state's General fund beginning in June 2004 through 2011. The restoration of funding included in the 2008 Plan is estimated to occur in May 2008 and will restore the Fund back to its original level but will only pertain to future dollars and will not restore funding diverted in past years.

[5] CL&P's 2008 conservation budget includes approximately $1.5 million in estimated revenues from the ISO FCM Transition period payments derived from energy efficiency initiatives and $1.0 million from the sale of Class III renewable credits created by energy efficiency projects and established in Public Act 05-01, *An Act Concerning Energy Independence*.

proposed continuing the near-term measures, as directed in Public Act 05-01, An Act Concerning Energy Independence, for 2008 and will be spending an additional $30.2 million to implement energy efficiency and demand-response programs focused on reducing federally mandated congestion charges (FMCCs). With the inclusion of PA 05-01 derived C&LM funding, CL&P will spend approximately $98.1 million on C&LM programs in 2008.

The Act includes the creation of an IRP process that will be reviewed by the CEAB. The Act requires that all cost-effective energy efficiency measures be implemented. This creates the potential for more energy efficiency in the future and positions energy efficiency as a key component of the state's comprehensive energy resource plan. An IRP based on the provisions of the Act was submitted to the CEAB on January 2, 2008 and is currently under review. CL&P will be filing a supplemental conservation plan in the spring of 2008 which reflects a ramp-up in spending consistent with the Act.

Over the years, CL&P's C&LM programs have led the energy-efficiency industry. Many of these programs have received national recognition. In June 2007, the American Council for an Energy Efficient Economy (ACEEE) rated Connecticut number one (tied with California and Vermont) in the United States on actions each state has taken to adopt energy efficiency. ACEEE also honored CL&P with several program awards in 2007 including Exemplary Program Recognition for the Energy Conscious Blueprint, Energy Opportunities, and Small Business Energy Advantage Programs. The United States Environmental Protection Agency (EPA) honored the Northeast Energy Efficiency Partnership (NEEP) and its sponsors, including CL&P, with an ENERGY STAR® Sustained Excellence 2007 Award for its continued leadership in protecting the environment through energy efficiency.

3.1 Current Conservation & Load Management Programs

Table 3-1 summarizes the projected peak impacts from CL&P's C&LM program activity over the forecast period 2008-2017 based on a funding level which assumes full restoration of C&LM funding, but does not include funding levels proposed in the IRP. These peak-load reductions reflect the direct impact of both historical and planned program activity over the ten-year period beginning in 2008 and include the impacts of PA 05-01-funded C&LM initiatives.

TABLE 3-1 CL&P-SPONSORED C&LM PEAK LOAD MW IMPACTS

	SUMMER IMPACT				WINTER IMPACT		
	Impact of Current Forecast	**Impact of Prior Activity**	**Total Summer Impact**		**Impact of Current Forecast**	**Impact of Prior Activity**	**Total Winter Impact**
2008	223	472	695	**2008**	223	529	751
2009	260	448	708	**2009**	257	507	764
2010	301	433	734	**2010**	294	488	782
2011	340	403	744	**2011**	332	465	796
2012	381	364	745	**2012**	370	408	777
2013	421	331	753	**2013**	406	331	737
2014	456	307	763	**2014**	436	270	705
2015	478	259	737	**2015**	441	209	651
2016	505	232	737	**2016**	462	175	638
2017	532	210	743	**2017**	483	156	639

Note: Totals may vary due to rounding

The 'Impact of the Current Forecast' columns included in the tables above reflect C&LM program activity for the period 2008 - 2017, based on the proposed level of funding described in Section A. Values do not include third party contracts that CL&P has with third party vendors.

Many factors could affect the level of savings that actually occur in the forecast period, including changes in available funding, changes in the energy consumption of CL&P customers, or changes in the economic climate.

3.2 Ten-Year C&LM Forecast

Table 3-2 presents the potential annual energy savings and summer and winter peak-load reductions forecasted for the C&LM programs implemented in the CL&P service territory for the program budgets described in the beginning of Chapter 3. Table 3-2 also reflects ten years of projected program activity beginning in 2008. The projected impacts of C&LM programs have been shown as separate line items since the average impact of energy efficiency programs is greater than ten years, while load-response activities have a more immediate, short-term impact.

3.3 Forecast Sensitivity

The C&LM programs utilize a complementary mix of lost opportunity, retrofit, and market transformation implementation strategies to achieve savings. The energy savings and peak-load reductions projected in this forecast are sensitive to changes in a number of factors including changes in the electricity marketplace and to customer attitudes.

The most significant variable in determining energy savings is the stability of funding, as noted earlier in this chapter. Projections are based on the continued implementation of a suite of programs similar in nature and focus to the 2008 Plan. Any legislative or regulatory changes in geographic and program focus will produce results which may vary from these projections. In particular, the adoption of the integrated resource plan discussed above would result in increased spending and savings over time.

Table 3-2: CL&P C&LM Programs Annual Energy Savings And Peak Load Reduction by Customer Class

Connecticut Light and Power 2008 – 2017 GWh Sales Saved

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Residential	26	107	192	277	364	443	502	481	515	549
Commercial	26	109	201	292	384	473	560	633	707	782
Industrial	13	53	98	142	188	231	273	309	345	382
Total GWh Sales Conserved	65	268	491	711	935	1,147	1,335	1,423	1,566	1,712

MW Reductions (Summer Impacts)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Residential	4	18	32	46	61	74	84	85	91	97
Commercial (non-Load Response))	5	20	38	55	73	91	108	122	136	150
Industrial (non-Load Response)	2	10	19	27	36	44	53	59	66	73
Total non-Load Mgt	11	48	89	128	169	209	244	266	293	320
Load Response	212	212	212	212	212	212	212	212	212	212
Total MW Reduction (Summer Impacts)	223	260	301	340	381	421	456	478	505	532

MW Reductions (Winter Impacts)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Residential	7	27	49	72	95	116	131	124	133	142
Commercial (non-Load Response))	3	12	22	32	42	53	62	70	79	87
Industrial (non-Load Response)	1	6	11	16	21	26	30	34	38	42
Total non-Load Mgt	11	45	82	120	158	194	224	229	250	271
Load Response	212	212	212	212	212	212	212	212	212	212
Total MW Reduction (Winter Impacts)	223	257	294	332	370	406	436	441	462	483

Chapter 4: TRANSMISSION PLANNING AND RELIABILITY

Chapter Highlights

- FERC, NERC, and the Northeast Power Coordinating Council (NPCC) have mandatory rules which require a highly reliable transmission system.
- The transmission system is an important enabler of competitive markets and the region's efforts to meet environmental goals.

4.1 Evolution Brings Challenges

Generation ownership in New England continues to be dominated by regional or national energy providers who operate their facilities in the competitive market. The obligation for utilities to procure energy supply for those customers who do not choose to purchase their energy from a competitive supplier continues. In 2007, the Act allowed Connecticut's electric utilities to re-enter the generation marketplace on a limited basis.

Even with the return of the utilities to the energy production role, centralized decision-making by electric utility companies does not determine electricity production. Instead, competitive market forces control the type of unit (i.e., base load, intermediate, fast-start), the type of fuel used by the unit, when the unit can produce energy, and where that unit will be interconnected.

Transmission system planning continues to evolve as a result of competition in the previously integrated electric industry. Local transmission systems built in the past to serve customer load from utility-owned generation within a limited geographic area are now expected to serve the same customer load from remote merchant generation. Transmission systems must now be able to operate reliably with less reliance on local generation.

4.2 National Reliability Standards are Mandatory

The Energy Policy Act of 2005 required FERC to designate an entity to provide for a system of mandatory, enforceable reliability standards under FERC's oversight. This action is part of a transition from a voluntary to a mandatory system of reliability standards for the bulk-power system. In July 2006, FERC designated NERC as the nation's Electric Reliability Organization ("ERO"). The expectation of the ERO is to improve the reliability of the bulk-power system by proactively preventing situations that can lead to blackouts such as that which occurred in August 2003.

The Connecticut transmission system is part of the larger NERC Eastern Interconnection and thus subject to the interdependencies of generation, load and transmission in neighboring electric systems. NERC recognizes that the actual planning and construction of new transmission facilities has become more complex. In 1997, NERC stated the following:

The new competitive electricity environment is fostering an increased demand for transmission service. With this focus on transmission and its ability to support competitive electric power transfers, all users of the interconnected transmission systems must understand the electrical limitations of the transmission systems and the capability of these systems to reliably support a wide variety of transfers.

The future challenge will be to plan and operate transmission systems that provide the requested electric power transfers while maintaining overall system reliability. All electric utilities, transmission providers, electricity suppliers, purchasers, marketers, brokers, and society at large benefit from having reliable interconnected bulk electric systems. To ensure that these benefits continue, all industry participants must recognize the importance of planning these systems in a manner that promotes reliability.[6]

In October 2006, FERC issued a proposed rule on mandatory reliability standards as developed by NERC, and, on March 15, 2007, FERC approved these reliability standards. FERC believes these standards will form the basis to develop and maintain the reliability of the North American bulk-power system. These mandatory reliability standards apply to users, owners and operators of the bulk power system, as designated by NERC through its compliance registry procedures. Both monetary and non-monetary penalties may be imposed for violations of the standards. The final rule, "Mandatory Reliability Standards for the Bulk-Power System," became effective on June 18, 2007.

4.3 FERC Order 890

FERC issued Order 890, "Preventing Undue Discrimination and Preference in Transmission Service", in early 2007. This Order requires transmission providers to meet with all of their transmission customers and interconnected neighbors to develop local and/or regional transmission plans on a nondiscriminatory basis. The purpose of this requirement is to eliminate the potential for any undue discrimination in the transmission system planning process by opening the line of communication between transmission providers and their transmission-providing neighbors, affected state authorities, customers, and other stakeholders.

4.4 The Transmission System Planning Process

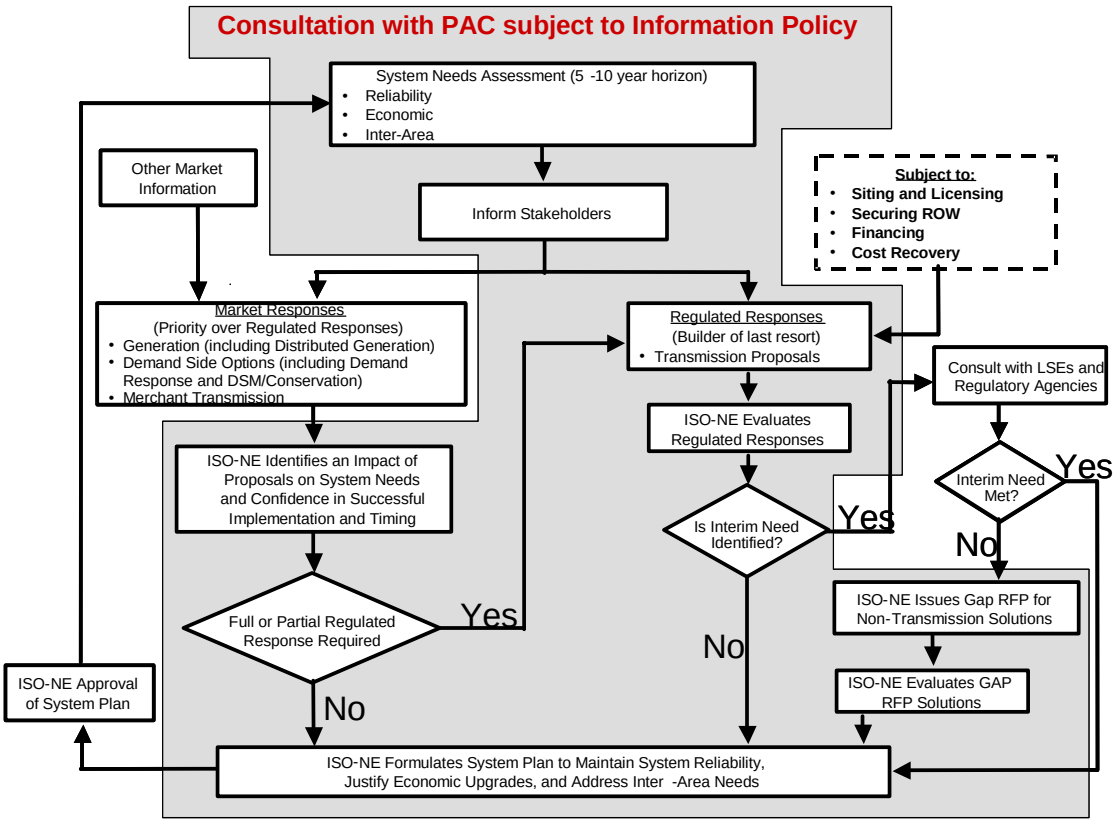
In 2001, FERC required NEPOOL to cede responsibility for the system planning process to ISO-NE. As the regional transmission organization ("RTO"), ISO-NE now determines transmission needs and approves solutions. ISO-NE has developed procedures which:

- Ensures bulk power system reliability under a variety of system conditions to prevent system overloads and cascading outages.
- Considers equipment outages, generation dispatch scenarios, interregional power flows, weather, and economic growth.
- Tests the system using NERC reliability standards, NPCC criteria, and ISO-NE procedures.

[6] Planning Standards, North American Electric Reliability Council, September 1997

Diagram 4-1 depicts the ISO-NE regional system planning process flow that exists under today's RTO structure. The diagram shows a process in which ISO-NE solicits alternative solutions to New England reliability problems which they have identified by a system needs assessment process. ISO-NE also determines which regulated transmission projects will address system reliability that are not resolved by market responses. Each year, ISO-NE prepares a comprehensive Regional System Plan (RSP) which addresses these issues. Market responses which materialize subsequent to ISO-NE's project proposals may then alter the scope of any regulated plans ISO-NE develops.

Diagram 4-1



PAC = Planning Advisory Committee
LSE = Load Serving Entity

Transmission system planning is now more complex than before industry restructuring, as plans must consider generation market variables including:

- Stalled merchant generator projects.
- Bankruptcies of large generating companies.
- Deactivations or retirements of aging generators.
- Potential for retirements of generators due to environmental or economic reasons.
- Generators that, due to constraints on the transmission system, have petitioned ISO-NE for Reliability Agreements (RA) to help ensure continued reliable operation of the power system during peak load periods.

- Environmental mandates such as RPS and RGGI.
- Growing demand response and intermittent resources.

The transmission planning process must be dynamic and sufficiently flexible in the face of these factors to meet increasing demands to transfer power from remote resources to load centers. In 1995, NERC described the planning process as follows:

> *Planning is the process by which changes and additions to the bulk electric system are determined. The interconnected electric systems must be able to accommodate a wide range of system conditions and contingencies - continuously varying customer demands, differing amounts and patterns of electrical generation as determined by availability and costs, and various planned and unplanned outages of the transmission facilities. This process strives to develop systems that will provide desired capability and performance in a cost-effective manner, while reliably supplying the electrical demands of customers and satisfying the business needs of electric system owners.*[7]

Maintaining the reliability of the power supply and delivery system is necessary to ensure a robust competitive marketplace for electricity, satisfy customer demands and expectations with regard to service reliability, and protect the health, welfare and safety of the public.

4.5 Environmental Requirements

New England's electricity sector faces many energy and capacity challenges in the next two decades as it simultaneously attempts to address reliability needs, environmental mandates, and economic impacts. RPS, driven by the RGGI, are now in place for all six New England states. Meeting RPS and the RGGI will require looking beyond New England for low-emissions, renewable resources. In 2005, renewable resources provided a small portion of New England's energy requirements. By 2016, Renewable Portfolio Standards require about 14% of New England's energy to come from renewable sources – a substantial increase over today's requirements.

Energy efficiency and demand-side options will be an important part of the resource mix, but alone cannot meet RPS and RGGI requirements. New England's renewable power potential is not enough to satisfy RPS or RGGI requirements. Nuclear and clean coal generation could help solve RGGI, but not RPS, and each would have siting challenges.

Importing power from Canada may provide significant amounts of low-emissions and potential renewable power. A portfolio approach with a mix of New England and Canadian resources could meet the region's need for a comprehensive energy solution. NU believes that further development of the portfolio approach could provide significant opportunities for Connecticut and the region.

[7] Planning Of The Bulk Electric Systems, North American Electric Reliability Council, Coordinated Planning Task Force of the Engineering Committee, May 1995

Chapter 5: TRANSMISSION SYSTEM NEEDS

Chapter Highlights

- CL&P's transmission facilities are an integral part of the transmission system it shares with the rest of New England and the Northeast.
- CL&P is currently constructing and developing many projects that will reinforce Connecticut's transmission system.
- To reliably and economically serve its electric load, CL&P has proposed projects to strengthen its 345-kV ties with Massachusetts and Rhode Island.

5.1 Background on CL&P's Transmission System

Transmission lines collectively form the infrastructure that is an interstate electric "highway system," moving electric energy from where it is produced to where it is used. In New England, moving electric energy is achieved primarily by the interconnected 345-kV regional bulk power system. The 345-kV transmission ties to neighboring utilities and control areas and expansion of the high voltage networks enables CL&P to meet its customers' peak demands.

In addition, CL&P's transmission grid is used to support reliable, economical and continuous service to intra-state customers. The 345-kV system allows for the efficient transfer of bulk power within and outside of the New England control area. This integrated grid enables CL&P to efficiently transmit power throughout its franchise service territory and share in the reliability benefits of parallel transmission paths.

The total mileage of CL&P's existing transmission circuits in service in Connecticut at the end of 2007 is comprised of:

- 413.1 circuit-miles of 345-kV lines (includes 11.9 circuit-miles of parallel underground cable);
- 1,177.4 circuit-miles of 115-kV lines (includes 50.5 circuit-miles of underground cables); and
- 99.5 circuit-miles of 69-kV lines (includes 2.8 miles of underground cable).

These transmission circuits supply power to 103 substations in the CL&P service territory. Circuit lengths associated with recently completed portions of the Middletown-Norwalk Project are not reflected in the totals above. Additionally, the 138-kV tie to the Long Island Power Authority is not listed in the numbers above because of the replacement project currently under construction.

5.2 Transmission System

Connecticut's most pressing transmission system need has been to increase the capability of the system to transport power into SWCT, where nearly half of the state's load is located. The system constraints for this area have affected both the CL&P and the UI service territories. Recent siting approvals of several major

projects in SWCT will substantially address this need. CL&P anticipates that all of these projects will be in service by the end of 2009.

Connecticut's next transmission concern for electric system reliability is to increase the state's ability to import power from the New England grid. During the summer of 2006, Connecticut (including CL&P, UI and CMEEC) experienced an all time peak demand of approximately 7,400 MW. Connecticut can reliably import only about 2,500 MW of power – or about 30 percent of the state's peak demand. Consequently, at least 70 percent of the electricity needed to serve customer peak demand must be generated in Connecticut.

Additionally, it is becoming increasingly likely that generator or transmission outages and the potential retirement of aging and uneconomic generation will produce a situation in which in-state generation and transmission imports cannot meet the growing summer peak power demands. The need for major southern New England transmission reinforcements was first identified by ISO-NE in their 2005 Regional System Plan. As a result of that plan, CL&P is proposing the NEEWS projects.

Following the upgrades associated with the NEEWS projects, Connecticut's import capability will increase to approximately 3,600 MW – or approximately 45% of the state's peak load at the time NEEWS is energized. The NEEWS projects are described further below.

Increasing the state's ability to import power will benefit customers in two ways. First, it will strengthen system reliability by broadening the base of power supply available to meet customer demand. Second, it will have a favorable impact on cost, because the same broadened base of supply should reduce the instances of Reliability Must Run ("RMR") contracts and other charges that are related to transmission system limitations.

Part of an Interstate System

CL&P's transmission system is part of the interconnected New England transmission network. Transmission lines across New England and outside of the region are interconnected to form a transmission network, sometimes called a "grid" or "system". The transmission grid serves multiple purposes, all of which work together to enhance reliability. CL&P and other electric utilities design the transmission grid to withstand national, regional and company-specified contingencies, so that electric power is transmitted reliably, safely and economically throughout the interconnected grid.

CL&P's 345-kV transmission system enables the movement of power from large central generating stations, such as Lake Road, Middletown 4 and the Millstone Nuclear Power Station, throughout Connecticut and over three interstate transmission tie-lines to and from neighboring utilities. These tie-lines provide connections with National Grid in Rhode Island, with the Western Massachusetts Electric Company (WMECO), and with Consolidated Edison in New York.

CL&P's transmission network also includes forty-one lower capacity transmission ties to neighboring utilities, all operating at voltages between 69-kV and 138-kV. These tie lines include: one with National Grid in Rhode Island, one with Central

Hudson in New York, thirteen with Connecticut Municipal Electric Energy Cooperative, Inc. (CMEEC), twenty with UI, and five with WMECO. Presently, the transmission tie with the Long Island Power Authority is not in-service because of the associated replacement project.

The CL&P transmission system, with its many tie lines to neighboring utilities, provides paths for power to move freely over the New England transmission grid. Power can flow in any direction, depending on generation dispatch, load patterns, and the configuration of the transmission system.

The transmission grid enables Connecticut to rely on out-of-state generation to help serve customer load. The transmission tie lines enable CL&P and neighboring electric systems access to economic generation, increased reliability during low and high load periods, and the ability to follow transmission and generation emergencies.

Existing Substations and System Loops

CL&P currently has ten major bulk-power substations where the 345-kV and 115-kV transmission networks interconnect - Montville, Card Street, Manchester, Southington, Frost Bridge, North Bloomfield, Norwalk, Killingly, Haddam, and Plumtree. These ten substations enable bulk power from the large central generation stations and power imported over the four 345-kV transmission tie lines to be delivered to CL&P's 115-kV system.

The 115-kV transmission system loops around high load density areas in central and SWCT, and also connects load centers in the eastern and northwestern parts of the state. The major 115-kV loop through western and SWCT ties the 345-kV interconnections at Southington and Norwalk to the 115-kV loop in the south. Overall this system transmits power from central stations, transmission tie lines and bulk power substations to distribution step-down substations supplying local area systems.

5.3 The New England East – West Solution (NEEWS)

Figure 5-1 presents a graphical description of the projects associated with NEEWS. The projects are described more fully below.

Figure 5-1: Map of NEEWS Projects

- **Interstate Reliability Project**
  A new 345-kV transmission line connecting National Grid's service territory in Massachusetts and Rhode Island with CL&P's service territory would, when combined with the upgrades shown below, increase the east-west power transfer capability across New England. While an exact route is not currently defined, this new line is expected to tie National Grid's Milbury Substation in Massachusetts to CL&P's Card St. Substation in Lebanon via National Grid's West Farnum Substation in Rhode Island.

- **Greater Springfield Reliability Project**
  New and modified 115-kV and new 345-kV transmission facilities, including a new 345-kV transmission line connecting Connecticut and western Massachusetts would address reliability problems in the Springfield, Massachusetts area. The new 345-kV facilities are expected to make a connection between WMECO's Ludlow Substation and Agawam Substation and a connection between Agawam Substation and CL&P's North Bloomfield Substation in Bloomfield.

- **Central Connecticut Reliability Project**
  New and modified 115-kV and new 345-kV transmission facilities would address reliability problems associated with the increased transfer of power from eastern Connecticut to western and southwestern Connecticut. The currently planned

connection points for a new 345-kV transmission line are North Bloomfield Substation in Bloomfield and Frost Bridge Substation in Watertown.

- **Rhode Island Reliability Project**
  New and modified 115-kV and new 345-kV transmission facilities would address reliability problems associated with Rhode Island's limited access to the 345-kV system and over-dependence on local generation. These facilities would be constructed by National Grid.

The ISO-New England technical approval process is scheduled to be completed in 2008. CL&P expects the aggregate of the NEEWS transmission reinforcements to significantly increase the transmission import capability into Connecticut with estimates of the increase ranging from 1,100-1,700 MW. The siting of these facilities in each of the three states is scheduled to begin in 2008.

5.4 Assessment of Transmission Needs in Connecticut's Sub-areas

CL&P's service territory is sub-divided into six areas for the purpose of assessing the reliability of the CL&P transmission system. A description of the regions and a summary of the future transmission needs in each area are discussed below.

5.4.1 Southwest Connecticut Area

The largest load area within the CL&P transmission system is the fifty-four town SWCT area including all of UI's service territory. This area, which is essentially west of Interstate 91 and south of Interstate 84, accounts for approximately half of the peak load in the state of Connecticut and is one of the fastest growing and economically vital areas of the state. Until the completion of the Bethel – Norwalk 345-kV transmission line in the Fall of 2006, this area was primarily served by 115-kV transmission lines, which had reached the limit of their ability to reliably and economically support the projected load in this area.

Southwest Connecticut Reliability Projects

A study by ISO-NE, CL&P, and UI proposed a comprehensive long-range solution to the multitude of problems identified in the SWCT area. The plan identified the need to construct a 345-kV loop to integrate the SWCT area into the New England 345-kV bulk power electric transmission grid.

Bethel-Norwalk Project

In Docket 217, the CSC approved the construction of a new 345-kV line between Plumtree Substation, in Bethel, and the Norwalk Substation, as well as modifications to 115-kV transmission lines. This new 345-kV transmission line was placed in-service in the Fall of 2006. This project increased power import capability to the Norwalk – Stamford sub-area by approximately 200 MW.

Glenbrook-Norwalk Cable Project

In Docket No. 292, the CSC approved the construction of two new 115-kV underground transmission lines between the Norwalk Substation and the Glenbrook Substation in Stamford. This project will effectively bring the reliability benefits of the new 345-kV transmission loop to the large load center in Stamford. The project is presently under construction, is approximately 70% complete, and is scheduled to be in-service in 2008.

Middletown-Norwalk Project

The second phase of the planned upgrades is the construction of a 345-kV transmission line from the Middletown area to Norwalk. In Docket No. 272, the CSC approved a combination of overhead and underground design types for the 345-kV line between Middletown and Norwalk. A new 345-kV switching station will be constructed at Beseck Junction, in Wallingford. The existing 345-kV Millstone-Southington line will be reconfigured so that the line section from Millstone is extended west from Oxbow Junction to the Beseck Switching Station and the Southington leg of this line will be extended east from Chestnut Junction to the 345-kV Scovill Rock Switching Station. The Oxbow Junction-to-Chestnut Junction segment of the line will be deenergized. In addition, the existing 345-kV Southington-Haddam Neck line will be looped south from Black Pond Junction to Beseck Switching Station, establishing a Southington-to-Beseck circuit and a Beseck-to-Haddam Neck circuit.

Southwest from the new Beseck Switching Station the project includes the construction of approximately 33.4 miles of new overhead 345-kV transmission line which terminates at the new East Devon Substation in Milford. Between East Devon and the new Singer Substation in Bridgeport, two 8.0-mile circuits of 345-kV XLPE cables will be built. The final leg of 345-kV transmission from Singer Substation to Norwalk Substation will be built, consisting of two 15.4-mile circuits of 345-kV XLPE cables. Two additional 345-kV to 115-kV interconnections will be built, one in Milford and one in Bridgeport. The proposed project also includes upgrades to a number of 115-kV lines, and modifications of the interconnecting facilities for Milford Power and Bridgeport Energy.

This project is under construction, is approximately 60% complete, and is scheduled to be in-service in 2009.

Long Island Cable Replacement Project

In Docket No. 224, the CSC approved the replacement of the existing 138-kV submarine cable from Norwalk Harbor to Northport on Long Island, New York. This project is currently under construction and is expected to be completed by the end of 2008.

Presently, two new bulk power substations are under construction. The Wilton Substation (Docket No. 311) and the Oxford Substation (Docket No. 327) are expected to be completed by the end of 2008.

Other Significant Southwest Connecticut Projects

In Petition No. 702, the CSC approved a rebuild of the 115-kV transmission line between Triangle Substation in Danbury, and the Plumtree Substation in Bethel, consolidating three existing circuits into two. The transmission configuration in this area is primarily radial in nature and does not provide integrated service to other regions. The load in this area had grown to the point where transmission outages may cause thermal overloads and voltage collapse. This project was completed and placed in-service in 2007.

Other Southwest Connecticut Projects Under Consideration

CL&P is considering future possible upgrades to 115-kV transmission lines in the Frost Bridge to Devon and Frost Bridge to Plumtree corridors. In addition, improvements to the Stamford-Greenwich 115-kV transmission system are also being considered.

5.4.2 Manchester - Barbour Hill Area

The Manchester - Barbour Hill area includes part of Manchester, the towns located north and east of Manchester, and the towns of Suffield and Windsor Locks. It is primarily supplied by two radial 115-kV transmission lines from the Manchester substation.

The rapid load growth along the Interstate 91 and Interstate 84 corridors, especially in Manchester and South Windsor adjacent to the Buckland Hills Mall area, is causing an urgent need to upgrade the bulk substation and transmission system at the Barbour Hill Substation in South Windsor. In the near term, CSC approved Petition No. 793 which allowed the rebuilding of the existing Barbour Hill 115-kV Substation and constructing the adjoining Barbour Hill 345-kV Substation located in South Windsor. This facility will address the reliability needs of the area and is scheduled to be in-service in 2008.

In the longer term, CL&P is also considering upgrades to the area in order to address long-term reliability needs.

5.4.3 Eastern Connecticut Area

The Eastern Connecticut area extends from the Rhode Island border in a westerly direction for about twenty miles and northerly from Long Island Sound to Massachusetts. The area is served by both CL&P and CMEEC.

Eastern Connecticut has experienced load growth along the Interstate 95 corridor and from the Foxwoods and Mohegan Sun casinos.

The 115-kV sources in the area are three 345/115-kV autotransformer substations - Montville Substation, Card Street Substation in Lebanon, and Killingly Substation in Killingly. Local generation is also available to serve customer load demands.

CL&P, CMEEC, and ISO-NE will perform a need analysis in 2008 to determine the reliability needs of the area from which future solutions will be developed.

5.4.4 Middletown Area

The Middletown area consists of a five to ten mile wide band east and west of the Connecticut River from Glastonbury to Old Lyme. The westerly section consists of the area included in a triangle that runs from Middletown to Old Saybrook and back to the easterly part of Meriden.

The recently completed 345-kV to 115-kV interconnection facilities at Haddam Substation provides another source helping to serve the area's load.

In addition, the reconductoring of the 115-kV transmission line between the Manchester Substation and the Hopewell Substation in Glastonbury (CSC Petition No. 737) was completed in 2007.

5.4.5 Greater Hartford Area

The Greater Hartford Area stretches north to the Massachusetts border, and is nestled in the middle of the Northwestern, Manchester/Barbour Hill, Middletown, Eastern and Southwestern Connecticut areas.

CL&P is evaluating transmission reinforcement projects including the construction of several 115-kV transmission lines in the area to improve reliability and address growing demand.

5.4.6 Northwestern Connecticut Area

The northwestern portion of the state is presently supplied by four 115-kV transmission lines.

In the Torrington, Salisbury, and North Canaan area, CL&P is evaluating the need to convert the existing 69-kV transmission system to 115-kV operation (two of the lines were pre-built for future 115-kV operation under Petition No. 26 before the CSC). An alternative being considered is to install a second 115/69-kV autotransformer at the Torrington Terminal Substation.

In addition, CL&P is evaluating the long term need for a new 115-kV transmission line into the area from the Frost Bridge Substation in Watertown.

5.5 Incorporation of Renewables through Transmission

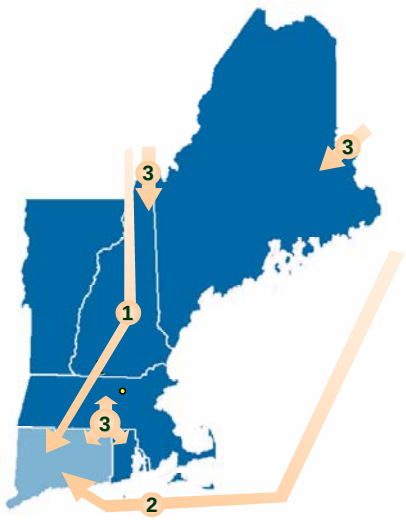
Transmission has an essential role to play in providing access to renewable energy. Renewable resources like wind and hydro power will likely not be sited close to load centers, so transmission will be needed to move this power to the load. The prospect of transporting renewable energy from northern New England and Canada is particularly promising. Long-term forecasts show surplus summer generation in the eastern provinces of Canada and insufficient generation in Ontario, New York, and New England.

Conceptually, there are three possible paths for getting Canadian power to Connecticut:

Option 1: Build new transmission lines over land direct from Canada to Connecticut.

Option 2: Build new transmission lines through the sea direct from Canada to Connecticut.

Option 3: Import more power into New England and strengthen Connecticut's ties with New England by building the NEEWS projects.



Strengthening Connecticut's transmission interconnection with the rest of New England will give the state the opportunity to share in the region's access to Canada's projected surplus summer power. Northern New England transmission facilities would also likely need to be reinforced to accommodate additional imports.

5.6 Underground Transmission and Cost

Transmission dockets in recent years have established that the electrical characteristics and other attributes of underground transmission lines make such lines difficult to incorporate within the existing transmission system, especially at the 345 kV voltage level. System reliability issues are created by the underground line differences which are not always feasible or inexpensive to manage. Public concern over the magnetic fields that surround power transmission lines has been a driver for public pressures to construct underground new transmission lines; however, underground transmission lines also produce magnetic fields in publicly accessible locations.

Some of CL&P's more recent transmission projects have required application of underground transmission lines, including lines operating at 345 kV. As CL&P builds new transmission, more of the system is going underground. In this past year, 6.4 miles of existing 115-kV overhead transmission line was replaced by approximately ten miles of underground 115-kV transmission cables, as part of CL&P's Bethel-Norwalk Project. Under this project, approximately twelve miles of parallel 345-kV underground cables entered service as part of a new 20.4-mile long 345-kV circuit. As part of the Middletown-Norwalk Project now in construction, CL&P's new transmission facilities will include approximately forty-five circuit miles of underground 345-kV cables, and approximately one mile of overhead 115-kV lines will be replaced by underground 115-kV cables. Finally, two new 115-kV underground cable circuits, each almost nine miles long, are under construction as part of the Glenbrook Cables Project.

At the conclusion of these projects, the underground circuit-mile component of CL&P's transmission system will have increased from forty-eight miles in 2005 to seventy miles in 2006 to one hundred thirty-four miles by year-end 2009.

Life-Cycle Costs

The 2007 Investigation into the Life-Cycle Costs of Electric Transmission Lines (Final CSC Report dated February 13, 2007) identified that the first and life-cycle costs of underground 115-kV and 345-kV transmission line are several times higher than the cost of an equal length of overhead transmission line when sufficient right-of-way already exists to accommodate the overhead line. In a regional cost allocation decision dated September 22, 2006, ISO-NE determined that $117.4 million of the estimated $357.2 million Bethel-Norwalk project cost would not be eligible for regional cost recovery after finding that an all-overhead 345-kV line costing $117.4 million less was feasible and practical to build, even though some new right-of-way was needed. Current projects that may be subject to localization of costs include the Middletown to Norwalk and the Glenbrook to Norwalk Projects. Consequently, it is expected that Connecticut's electric customers will pay for all of the incremental costs associated with underground transmission facilties rather than the typical practice of sharing the costs across all of New England.

Chapter 6: CL&P's TRANSMISSION PROJECTS

CL&P's transmission projects are summarized in Tables 6-1 through 6-3 below. Presently, there are transmission planning studies underway, which may additional transmission projects beyond those listed during the forecast period. These projects would meet reliability criteria or provide efficient means to transmit electricity.

The estimated in-service dates ("ISD") for new transmission facilities listed in the tables may vary through time as the needs of the system change.

Table 6-1 Transmission Circuit Segments Approved by the Connecticut Siting Council

Table 6-2 Other Planned Transmission Circuits

Table 6-3 Substation Projects – 69 kV and above

Table 6-1
Connecticut Light and Power Company
Transmission Circuit Segments Approved by the Connecticut Siting Council
(As of January 1, 2008)

Docket # or Petition #	From		To		Area	Voltage kV	Length of Circuit (miles)	Project Type	Proposed ISD
	Substation	City or Town	Substation	City or Town					
Docket 224	Norwalk Harbor Substation	Norwalk	Northport Substation	Northport N.Y.	Norwalk/ Stamford	138	5.8	Replace Cable	2008
Docket 292	Norwalk Substation	Norwalk	Glenbrook Substation	Stamford	Norwalk/ Stamford	115	8.7	New Underground Cable Circuit #1	2008
Docket 292	Norwalk Substation	Norwalk	Glenbrook Substation	Stamford	Norwalk/ Stamford	115	8.7	New Underground Cable Circuit #2	2008
Docket 272	East Devon Substation	Milford	Singer (UI) Substation	Bridgeport	Southwest	345	2.4	New Underground Cable Circuit #1	2009
Docket 272	East Devon Substation	Milford	Singer (UI) Substation	Bridgeport	Southwest	345	2.4	New Underground Cable Circuit #2	2009
Docket 272	Norwalk Substation	Norwalk	Singer (UI) Substation	Bridgeport	Southwest	345	15.4	New Underground Cable Circuit #1	2009
Docket 272	Norwalk Substation	Norwalk	Singer (UI) Substation	Bridgeport	Southwest	345	15.4	New Underground Cable Circuit #2	2009
Docket 272	Devon Substation	Milford	Wallingford (CMEEC) Substation	Wallingford	Southwest	115	24.1	Rebuild a portion of CL&P's 1640 Circuit	2009
Docket 272	Devon Substation	Milford	June St. (UI) Substation	Woodbridge	Southwest	115	13.4	Rebuild a portion of CL&P's 1685 Circuit	2009 *
Docket 272	North Haven (UI) Substation	North Haven	Branford Substation	Branford	Southwest	115	1.2	Rebuild a portion of CL&P's 1655 Circuit	2009 *
Docket 272	East Devon Substation	Milford	Devon Substation	Milford	Southwest	115	1.3	New Circuit #1	2009
Docket 272	East Devon Substation	Milford	Devon Substation	Milford	Southwest	115	1.3	New Circuit #2	2009
Docket 272	E. Meriden Substation	Meriden	N. Wallingford (CMEEC) Substation	Wallingford	Southwest	115	2.0	Rebuild a portion of CL&P's 1466 Circuit	2009 *

*Completed Construction in 2007 as part of the Middletown-Norwalk Project.

Table 6-1
Connecticut Light and Power Company
Transmission Circuit Segments Approved by the Connecticut Siting Council
(As of January 1, 2008)

Docket # or Petition #	From		To		Area	Voltage kV	Length of Circuit (miles)	Project Type	Proposed ISD
	Substation	City or Town	Substation	City or Town					
Docket 272	Southington Substation	Southington	June Street (UI) Substation	Woodbridge	Southwest	115	11.5	Rebuild a portion of CL&P's 1610 Circuit	2009
Docket 272	Devon Substation	Milford	Devon Switching Station(UI)	Milford	Southwest	115	0.1	Rebuild CL&P's portion of 1780 Circuit	2009
Docket 272	Devon Substation	Milford	Devon Switching Station(UI)	Milford	Southwest	115	0.1	Rebuild CL&P's portion of 1790 Circuit	2009
Docket 272	Devon Substation	Milford	Beacon Falls Substation	Beacon Falls	Southwest	115	3.8	Rebuild a portion of 1570 Circuit	2009
Docket 272	Bunker Hill Substation	Waterbury	Beacon Falls Substation	Beacon Falls	Southwest	115	3.8	Rebuild a portion of 1575 Circuit	2009
Docket 272	Devon Substation	Milford	Southington Substation	Southington	Southwest	115	22.5	Remove a portion of 1690 Circuit	2009 *
Docket 272	Scovill Rock Substation	Middletown	Chestnut Junction	Middletown	Middletown	345	2.6	New	2009
Docket 272	Oxbow Junction	Haddam	Beseck Switching Station	Wallingford	Middletown	345	8.0	New	2009
Docket 272	Black Pond Junction	Middlefield	Beseck Switching Station	Wallingford	Middletown	345	2.8	New Circuit #1	2009
Docket 272	Black Pond Junction	Middlefield	Beseck Switching Station	Wallingford	Middletown	345	2.8	New Circuit #2	2009
Docket 272	Beseck Switching Station	Wallingford	East Devon Substation	Milford	Middletown	345	33.4	New	2009
Docket 272	Haddam Substation	Haddam	East Meriden Substation	Meriden	Middletown	115	8.4	Rebuild a portion of 1975 Circuit	2009

*Completed Construction in 2007 as part of the Middletown-Norwalk Project.

Table 6-2
Connecticut Light and Power Company
Other Planned Transmission Circuits
(As of January 1, 2008)

From		To		Area	Voltage kV	Length of Circuit (miles)	Project Type	Proposed ISD
Substation	City or Town	Substation	City or Town					
Card Substation	Lebanon	Lake Road Substation	Killingly	Eastern	345	TBD	New	TBD
Lake Road Substation	Killingly	West Farnum Substation (RI)	CT/RI State line	Eastern	345	TBD	New	TBD
Millstone Substation	Waterford	Manchester Substation	Manchester	Eastern	345	TBD	Modify a portion of 310 Circuit	TBD
Card Substation	Lebanon	Manchester Substation	Manchester	Eastern	345	TBD	Modify a portion of 368 Circuit	TBD
Tunnel Substation	Lisbon	Ledyard Junction	Ledyard	Eastern	69	8.5	Rebuild to 115kV	TBD
Ledyard Junction	Ledyard	Gales Ferry Substation	Ledyard	Eastern	69	1.6	Rebuild to 115kV	TBD
Gales Ferry Substation	Ledyard	Montville Substation	Montville	Eastern	69	2.4	Rebuild to 115kV	TBD
Ledyard Junction	Ledyard	Buddington(CMEEC) Substation	Groton	Eastern	69	4.7	Rebuild to 115kV	TBD
Frost Bridge Substation	Watertown	Campville Substation	Harwinton	Northwest	115	10.3	Rebuild	TBD
North Bloomfield Substation	Bloomfield	Agawam Substation (MA)	CT/MA State Line	Greater Hartford	345	TBD	New	TBD
North Bloomfield Substation	Bloomfield	Frost Bridge Substation	Watertown	Greater Hartford	345	TBD	New	TBD
North Bloomfield Substation	Bloomfield	Southwick Substation (MA)	CT/MA State Line	Greater Hartford	115	TBD	Modify	TBD
North Bloomfield Substation	Bloomfield	South Agawam Substation (MA)	CT/MA State Line	Greater Hartford	115	TBD	Modify 1821 Circuit	TBD
North Bloomfield Substation	Bloomfield	South Agawam Substation (MA)	CT/MA State Line	Greater Hartford	115	TBD	Modify 1836 Circuit	TBD
Manchester Substation	Manchester	Scovill Rock Substation	Middletown	Middletown	345	TBD	Rebuild a portion of the 353 Circuit	TBD

Table 6-3
Connecticut Light and Power Company
Substation Projects - Rated 69 kV and Above
(As of January 1, 2008)

Substation	City or Town	Area	Voltage (kV)	Project Type	Proposed ISD
Wilton Substation	Wilton	Southwest	115/13.8	New	2008
Norwalk Substation	Norwalk	Southwest	115	Modified	2008
Glenbrook Substation	Stamford	Southwest	115	Modified	2008
Norwalk Harbor Substation	Norwalk	Southwest	138/115	Modified	2008
Flax Hill Substation	Norwalk	Southwest	115	Modified	2008
Oxford Substation	Oxford	Southwest	115	New	2008
Cedar Heights Substation	Stamford	Southwest	115	Modified	2008
Barbour Hill Substation	South Windsor	Manchester/ Barbour Hill	345/115	Modified	2008
Enfield Substation	Enfield	Manchester/ Barbour Hill	115	Modified	2008
Cos Cob Substation	Stamford	Southwest	115	Modified	2009
Devon Substation	Milford	Southwest	115	Modified	2009
East Devon Substation	Milford	Southwest	345/115	New	2009
Southington Substation	Southington	Southwest	345	Modified	2009
Mystic Substation	Mystic	Eastern	115	Modified	2009

Table 6-3
Connecticut Light and Power Company
Substation Projects - Rated 69 kV and Above
(As of January 1, 2008)

Substation	City or Town	Area	Voltage (kV)	Project Type	Proposed ISD
North Bloomfield Substation	Bloomfield	Greater Hartford	115	Modified	2009
Norwalk Substation	Norwalk	Southwest	345	Modified	2009
Beseck Switching Substation	Wallingford	Southwest	345	Modified	2009
Card Substation	Lebanon	Eastern	345	Modified	2009
Millstone Substation	Waterford	Eastern	345	Modified	2009
Stepstone Substation	Guilford	Middletown	115	New	2009
Rood Ave Substation	Windsor	Greater Hartford	115	New	2009
Glenbrook Substation	Stamford	Southwest	115	Modified	2009
Long Mountain Substation	New Milford	Western	345	Modified	2009
Waterford Substation	Waterford	Eastern	115	New	2010
Kleen Substation	Middletown	Eastern	345	New	2010
Waterside Substation	Stamford	Southwest	115	Modified	2010
Scitico Substation	Enfield	Eastern	115	Modified	2011
Bunker Hill Substation	Waterbury	Southwest	115	Modified	TBD

Table 6-3
Connecticut Light and Power Company
Substation Projects - Rated 69 kV and Above
(As of January 1, 2008)

Substation	City or Town	Area	Voltage (kV)	Project Type	Proposed ISD
Millstone Substation	Waterford	Eastern	345	Modified	TBD
Card Substation	Lebanon	Eastern	345	Modified	TBD
Lake Road Substation	Killingly	Eastern	345	Modified	TBD
Frost Bridge Substation	Watertown	Southwest	345	Modified	TBD
North Bloomfield Substation	Bloomfield	Greater Hartford	345	Modified	TBD
Glenbrook Substation	Stamford	Southwest	115	Modified	TBD
Torrington Terminal Substation	Torrington	Western	115	Modified	TBD
Montville Substation	Montville	Eastern	115	Modified	TBD
Peaceable Substation	Redding	Western	115	Modified	TBD
Cedar Heights Substation	Stamford	Western	115	Modified	TBD
Manchester Substation	Manchester	Manchester/ Barbour Hill	345	Modified	TBD
Waterside Substation	Stamford	Southwest	115	Modified	TBD
Sherwood Substation	Westport	Norwalk/ Stamford	115	New	TBD